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ABSTRACT

Open-ended activities have been advocated in the literature of gifted education as a way to allow students who are identified as gifted to work in their own interest areas, in their own learning styles, and at their own ability levels. They are recommended as a means to differentiate instruction, but little research documents this recommended strategy. In this qualitative study, the nature of open-ended activities was explored in one third- and one fourth-grade heterogeneously grouped classroom. Data sources included observations, interviews with teachers and students, learning style and interest assessment instruments, and documents related to the open-ended activities. The relationship between the open-ended activities and responses of 11 students identified as gifted is the focus of the study. Findings demonstrated that targeted students' responses were qualitatively different from those of nontarget students, but that assessing the quality of the response was often not within the teacher's design or the goal of the activity. Children's responses demonstrated differences in ability levels, but it was not necessarily the case that targeted students' response matched their ability levels. Appendix A presents a list of observation times, and Appendix B describes the open-ended activities. (Contains 14 references.) (Author/SLD)

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Open-Ended Activities: Differentiation Through Learner Responses*

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Paper Presented at the 1995 Annual Meeting of the American Educational Research Association, San Francisco, CA

Running Head: DIFFERENTIATION

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Abstract

In this era of curriculum reform and inclusion, there is a need to address methods and strategies which challenge learners of all abilities and special needs in general education settings. Open-ended activities have been advocated in the literature of gifted education as a means to allow students who are identified as gifted to work in their own interest areas, in their own learning styles, and at their own ability levels. They are recommended as a means to differentiate instruction. There is very little research which documents this recommended strategy.

In this qualitative study, I investigated the nature of open-ended activities in one third and one fourth grade heterogeneously grouped classroom. Data sources included observations, interviews with teachers and students, learning style and interest assessment instruments, and documents related to the open-ended activities.

This paper provides a review of the study and addresses specifically the relationship between open-ended activities and responses from eleven students identified as gifted. Findings demonstrated that targeted students' responses were qualitatively different from those of non-target students, but that assessing the quality of the response was often not within the teacher's design or goal of the activity. Children's responses demonstrated differences in ability levels, but it was not necessarily the case that targeted students' responses matched their ability levels. Based on these findings, issues related to the use of open-ended activities as a strategy to provide differentiation will be explored.

Open-Ended Activities: Differentiation Through Learner Responses

Targeting Open-Ended Activities

A differentiated curriculum "denotes sets of specialized learning experiences which develop the unique abilities of students identified as gifted/talented" (Passow, 1982, p. 6). Curricular differentiation strategies include making modifications in the content, process, and product domains of instruction (Maker, 1982). Many strategies suggested for curricular differentiation for identified gifted students can be found in the literature. However, the research to provide strong support for most of those strategies is lacking (Shore, et al., 1991). In particular, research about open-ended activities is limited.

Open-ended activities are advocated as a means to differentiate instruction by allowing students to work at their own rates, use their preferred learning styles, investigate their own interests, and produce work commensurate with their abilities. Theoretically, teachers using this strategy could give all students the same activity, and quality of instruction, with the differentiation occurring in the children's response, reflective of their abilities and interests. Differentiating learning experiences through learner responses, as opposed to offering different learning experiences, may be a powerful instructional strategy for maintaining both challenge and democratic principles in the classroom.

Ambiguity exists about what is meant by an open-ended activity. Little has been documented about the nature of open-ended activities, how they are implemented, or how they relate to curricular differentiation.

The purpose of my inquiry was threefold: (a) to illuminate the larger issue of how open-ended activities provide curricular differentiation in a general education setting, (b) to explore ways in which open-ended activities were implemented and manifested in heterogeneously grouped classrooms and (c) to provide descriptions of open-ended activities across curricular areas.

Using the conceptual framework of curricular differentiation defined by Kaplan (1986), I sought to examine how open-ended activities differentiated instruction in the content, process, and product domains. Modeling the matrix of Kaplan's Grid (1986), I examined where choices were in each of the domains and how the students' responses related to those choices. This was a novel approach, not previously found in the literature, for examining this instructional strategy. Previous conceptions of open-ended activities that were found in the literature follow.

Conceptions of Open-Ended Activities

One difficulty in investigating open-ended activities is the ambiguity of the term. Open-ended activities have historically been associated with creativity training. On creativity tests such as the Torrance Tests of Creative Thinking (Torrance, 1966), open-ended activities encourage the respondent to provide a number of answers to the same question, as well as unusual answers.

Open-ended activities may also be associated with the divergent thinking cell in Guilford's Structure of Intellect Model (Guilford, 1967). The model expanded on the various types of thinking abilities. Using Guilford's model, educators developed open-ended activities to strengthen students' skills in the

divergent production category of thinking. The principle involved in developing open-ended activities for divergent thinking is that there is no one correct answer.

Maker (1982) described open-endedness as part of the process modification needed for identified gifted students. According to Maker (1982):

> Open-endedness implies a different teacher attitude reflected in (a) questioning techniques as well as the content of questions, (b) the design of learning experiences, and (c) evaluation of student responses to questions. (p. 38)

Thus, Maker suggests that open-ended goes beyond the right or wrong answer issue. It involves an attitude toward total instruction, questioning techniques as well as other learning experiences, and the evaluation of student responses. Another process modification described by Maker (1982) and related directly to open-ended activities is "freedom of choice." She claimed:

> Allowing gifted students the flexibility to choose topics to study (content), [emphasis added] methods to use in the process, and the environments in which to pursue them is an important method for facilitating success with other systems as well as to build upon the learning and motivational characteristics of these children. (p. 49)

This notion that identified gifted students have a stronger need for choices in their learning than other children is not clearly supported in the literature:

> There is widespread agreement that a student expressing interest in a topic should be encouraged to pursue it and, indeed, that the opportunity to do so promotes interest. There is no agreement that breadth is important if it means nontraditional courses. There are contrasting opinions as to who

should be making the choices: students, parents, or curriculum planners at local and higher levels. (Shore, Cornell, Robinson, & Ward, 1991, p. 110)

Richards and Gipe (1993) cited characteristics of students who are gifted as reasons why they prefer and participate in activities that provide "opportunities for self-determination and self-selection of learning experiences" (p. 12). Kohn (1993) presented powerful evidence which supported that all students benefit by having choices in their learning. He indicated that choices may be as subtle as where to sit, who to work with, when to do an assignment, or which assignment to do first. However, in case studies involving three students labeled learning disabled and gifted, Cordell and Cannon (1985) recommended that teachers avoid open-ended activities and limit choices for this population of students.

Based on available research in this area, it would be difficult to conclude that open-ended activities benefit some types of students and not others. When open-ended activities refer to questioning techniques, they are not only proven to be beneficial for identified gifted learners (Pollack, 1988), but they are strongly advocated to be infused into higher level thinking models for all learners (Van-Tassel Baska, 1992). When open-ended activities refer to the amount of choices students have, authors differ in the populations for which they advocate their use.

Clearly the literature shows that open-ended activities involve multiple meanings. Open-ended activities could simply be those that have no one right answer, or as in Maker's (1982) definition, those that provide the students with choices. Expanding the definition of open-ended activities from being open only in the product domain (i.e., having no one right answer), to those which provide

the learner with choices in the content, process, or product domain enhances their use as a strategy to modify curriculum.

To summarize, I based my rationale on the need to explore teaching strategies which differentiate the curriculum for identified gifted learners in a general education setting. In particular, open-ended activities have never been examined within the conceptual framework modeled after Kaplan's Grid (1986). Qualitative studies which allow prolonged observations of students' learning patterns are needed to examine the relationship of learner responses to instructional strategies.

Overview of Research Procedures

Methods and Data Sources

I chose a naturalistic, qualitative design because it was important to observe the context in which open-ended activities occurred. By observing the activities in context without first choosing one subject area, I could look at how open-ended activities were designed across curricular areas, whether teachers designed open-ended activities in one area more than another, whether students were more likely to pursue open-ended activities in groups or individually, and whether teachers demonstrated preferences in specific designs of open-ended activities. I also felt it was important to look at how the same students responded to open-ended activities in different curricular areas. Purposeful sampling was used to select the setting and participants.

Setting and Participants. The school district was selected because there were no formal pull-out programs or special classes for identified gifted and talented children. Curricular differentiation for students identified as gifted was

the responsibility of every classroom teacher. These particular two teachers were selected because of their prior training in gifted education. They were building representatives on the district-wide committee for gifted education, and had prior coursework in gifted education. To examine in depth, the relationship of open-ended activities to the responses of identified gifted students, eleven "target" students, identified as gifted or talented by the school district, were selected randomly out of those identified students whose parents gave permission for them to participate.

Data Collection and Analysis. Data sources included observations, interviews with participating teachers and target students, Learning Styles Inventory (Renzulli & Smith, 1978), Interest-a-Lyzer (Renzulli, 1977), and documents related to the activities or the classrooms of the participating teachers involved. Over 100 hours of observations were spent in the classrooms from October 1993 - May, 1994, providing 33 different types of open-activities to analyze. See Appendix A for the complete list of observations and Appendix B for a brief description of the open-ended activities which were observed and analyzed in both classrooms.

Observation data were triangulated with instruments designed to assess students' instructional style preferences and interests. Two formal interviews and ongoing informal interviews with each classroom teacher, as well as informal interviews with target students also served to triangulate observational data.

Using product, process, and content as the conceptual guide, I identified and analyzed in what domains, open-ended activities provided opportunities for student choices, and in what domains students had opportunities to vary their

responses. A matrix, The Open-Ended Activity Profile, was developed to more clearly articulate differences between various types of open-ended activities. This matrix can be seen in Figure 1. Operational definitions for the study were as follows: content, topic or area of study; process, processes of production, including choices in sequence, materials, working alone, with a partner, or with a group, or choosing from processes specific to a discipline such as "working backwards in math," predicting before calculating, or editing before doing a final draft; and product, the tangible response to the activity. Students may have unlimited, many, few, or no choices within those domains.

DOMAINS

CHOICES	CONTENT	PROCESS	PRODUCT
Unlimited			
Many			
Few			
None			

Figure 1. Open-Ended Activity Profile.

Establishing Trustworthiness. Engaging participating teachers in constant dialogue about the activities, interviews, and observations, provided ongoing member checks for the analysis and writing stages of the study. Transcripts were routinely shared with participating teachers for their edits, and comments. This ongoing communication gave insight and credence to interpreting the findings. Other methods to enhance the credibility of the study included peer reviews, interim and progress reports, and prolonged engagement in the field. Peer reviews occurred during the data collection, analysis, and writing processes of the

study. Interim and progress reports were distributed to doctoral dissertation committee members, and teacher participants. Their feedback was incorporated into the analysis and writing phases of the study.

Description of Open-Ended Activities Observed

The two classroom teachers, Keith (third grade) and Becky (fourth grade), designed and implemented open-ended activities quite differently. Briefly, I will describe some of those differences and the types of activities which I observed in each setting. Space is too limited here for a thorough description of all 33 activities. For a brief description of each of the open-ended activities, see Appendix B, or for a more thorough discussion of all of the activities, see Hertzog, 1995.

In Keith's room, I observed mostly writing, reading, discussion periods, and "free time" because these were the areas in which I had the most opportunities to see children engaged in open-ended activities. Writing was routinely an open-ended activity time period where children had approximately 30 minutes to write whatever they wanted in their notebooks. They could write with a partner or by themselves, at their seats or somewhere else in the room. They had many choices in the content and process domain, but their choices in the product domain were limited. Students were expected to write a first draft of a story, have help from a teacher to edit it, and then copy it over in final form and bind it with a book binder that was located in the room. Students had the choice of sharing stories orally with the class or leaving it on a book rack to be read by other children.

Reading in Keith's room was a time for children to read any book of their choice silently at their seats or somewhere else in the room. Keith held private

book conferences with the children to enhance understanding of what they read and to share information about their chosen books with him.

Discussion periods took place regularly every morning and every afternoon at group meeting times. Keith often let children discuss what was on their minds. Children had free time when they finished their work and were waiting for something else to occur, or when everyone finished something and the teacher was not ready to move on to the next agenda item. Keith valued free time and most days had a structured free time period. Children could choose to do anything during free time, including playing games, drawing pictures, listening to music with ear phones, or working on plays together. Keith's free time had unlimited options in every domain: content, process, and product.

Thus, Keith's open-ended activities were built into the pattern and construction of his academic areas such as reading and writing. Becky's open-ended activities were developed quite differently. In Becky's room, I observed math, science, language arts, French, and discussion periods. Becky constructed open-ended activities for writing on some days by giving students a theme or title to write about, or asking students for a specific genre and they could choose the topic. Becky frequently varied the number of choices and types of domains in which the activities were open. Becky's math, however, focused on problem solving skills and nearly always had unlimited options in the process domain.

The Relationship Between Open-Ended Activities and the Responses of Targeted Identifed Gifted Students

When I initially sought to explore the relationship between open-ended activities and the responses that children gave to them, I was primarily interested

in how and if open-ended activities differentiated instruction. I was also interested in how the design of the open-ended activity affected differences in responses. Questions which delved into this complex relationship were the following: (a) How were students' responses different from each other within each activity? (b) Were there differences in quality between responses from targeted children and those of other children? (c) Did differences correlate with differences in abilities? (d) Were quality of responses indicative of student abilities? (e) Were differences in responses related to differences in types of open-ended activities, and (f) Were responses related to differences in interests and learning style preferences? To examine these questions, I triangulated data from teacher interviews, copies of students' responses, and classroom observations. Although all of the questions and findings are interrelated, for clarity, I have categorized the questions above and structured this section around three components of the research question: (a) a discussion of variability (how responses differed), (b) judgments of quality, and ability, and (c) relationship between differences in responses and Open-Ended Activity Profiles.

Discussion of Variability

The parameters of variability changed according to the design of the open-ended activities and the criteria for evaluation. I explicitly asked the two teachers how responses from identified gifted children differed in general, from responses of other children on open-ended activities. Keith explained:

> One thing that surprises me is that most often times my high achieving students or the students who are traditionally A students, don't tend to just do the assignment and quit and do something else. They tend to also

elaborate, take more time, be more personally involved, and it's certainly encouraged.

Becky described how her students identified as gifted performed differently from her other students in open-ended activities:

> If I ask them, if we're studying other cultures or something, they can select an easier or a more difficult level. Usually, the children who aren't very gifted perhaps will write about things that they see in the films and things that we do in class, but don't do a lot of research to find out more things to go into depth. And the children who are the real thinkers and the readers will go in and read through encyclopedias, books and all kinds of wonderful things.

Note that Becky and Keith perceived differences in the students' process of learning and in the products. Becky and Keith described evidence of students taking on self-initiative to make more elaborate and better products. They also described how students became more involved in the process of learning, and sought external resources according to their interests. My observational data and copies of students' responses verified the teachers' perceptions. This level of personal involvement was especially seen in the writing instruction in Keith's room, and in the project activities in Becky's room. Targeted students in Keith's room were self-motivated to create elaborate stories, and often planned ahead for other stories. In Becky's room, targeted students raced to tell me about the projects, how and with whom they planned them, where they met after school, and all of the materials and resources that they used, including a child's home

computer. Most of the other children in her room, doing the same projects, did not seek outside help or materials, or meet after school to work on their projects.

The teachers saw variability in terms of interest and going beyond what other children did. Going "beyond and above" what other children do is supported in the gifted education literature as a means of differentiating instruction. In this sense, open-ended activities were a means of providing opportunities for students to go beyond what was required. However, I looked at other dimensions of variability. Specifically, I questioned teachers about whether the quality of students' products or responses differed, and whether students were working at their ability level.

Judgments of Quality and Abilities

Becky and Keith did not compare responses of targeted students to other students. Rather, they individualized their evaluation criteria and evaluated students' responses based on their perceptions of the students' capabilities. Again, this factor was instrumental in facilitating the environment for the activities to occur. Students were not threatened by unfair comparisons of their products.

When the products were in written form such as Keith's writing, or stories in Becky's class which focused on a given topic, the quality of writing reflected students' writing abilities. The district writing expert scored writing samples holistically according to quality of content, organization, style, and mechanics. Without knowing who my identified gifted students were, she was able to name all but two of my students by examining their writing samples. This demonstrated that most of my targeted students performed better than their peers on these

activities. It stands to reason that this was true since most of them were identified as being gifted in the language arts area.

However, targeted students were not necessarily more artistic than their peers. Although some of the responses to open-ended activities involved drawing, elements of drawing ability were never part of the teacher's evaluation criteria. Some of the students who were not target students demonstrated exceptional drawing skills with elaborate details, unusual uses of space and color, and incorporated original ideas. The drawing samples serve to illustrate that targeted students, no matter how motivated, how capable, or how organized they were, did not perform necessarily better as a group than their peers on activities which involved drawing. This was totally dependent on students' interests and strengths in the art discipline. In fact, responses in this format gave students who were not identified as gifted an opportunity to demonstrate their strengths and creative imagination through their drawing. The significant implication in this finding is that teachers may wish to vary the format of the product to allow for products that are not written (nonverbal). This would give all students more opportunities to demonstrate their strengths and to promote opportunities for these strengths to be shared.

Quality of responses seemed relatively unimportant to the teachers in some of the open-ended activities. Becky used the math and science journals for her own information and for class discussion. When she asked the students to write down the hardest math fact they knew, or some scientific event that they had heard about over the weekend, the purpose was to share information, not to judge the quality of their work.

Criteria for evaluation was imposed by my own analysis. For example in the science journals, it was evident that some of the students understood science concepts that they wrote about and some did not. In our interview, I talked with Becky about the science journal responses. She said that she just wanted to know if they could relate some of the things that they see to science. I asked her if it was important for them to get the scientific principle correct. She replied, "Since I never talked to them about that, or explained to them that they had to understand it, I certainly wouldn't have evaluated them on that."

Thus, although quality of responses in the science journal was not an issue to the teacher, quality differed in writing clarity, sophistication, understanding of the assignment, and in the ability to relate what students saw to science. Below are four examples of science journal responses, the first two are from target students (R1, R2), and the second two (R3, R4)were chosen randomly from Becky's other students to illustrate this point. They are quoted with their original spelling:

> R1: Dec. 14, 1993
> Last week in Science, I liked it when the student teacher did a sort of science expirement with us with the eggbeaters. We had to find out how many times the beater goes around when you turn the wheel around once. Then twice, and so on.
>
> R2: My mom blew up our baked potatoes. When she forget to fork them she opened the microwave and pop, bang, we had mashed potatoes. It's scientific because it had to [do] with machines and electricity.
>
> R3: On Saterday moring tuck apurt my toy car. Thin I let it go and I sall how the lechtrysoty run throe it.
>
> R4: I saw my mom makeing hameburgres.

After discussing all of the science and math responses with Becky, she commented, "It's really interesting you know when you give these kinds of

assignments, you give it for one reason and maybe you know you learn so much more." These responses were indicative of writing, spelling, organization, and thinking abilities. They revealed students' awareness and interest in science. One student said that he wanted to get a telescope for Christmas. The emphasis on the two journal activities was on what the children knew, not on how well they expressed it. Thus, although the quality of responses differed, this appeared to be irrelevant to the goal or the instructional design of the activity.

For Becky, a high quality response was not a goal in the science journal. Instead, her goal was simply to learn about the students' ability to connect an event to science. In reviewing the students' responses with me, she admitted that she learned more about the students than she expected to learn. Judgments of quality in open-ended activities which are primarily designed for self-expression may not be important to the teacher even though these types of activities may reveal vast differences in abilities and interests. The question should be raised here if there are other types of instructional activities that have this lack of need for evaluation, or if this is unique to certain types of open-ended activities.

In summary, the quality of responses was based on arbitrary criteria, contextual for each open-ended activity. The quality of responses was indicative of differences in students' abilities. In most cases where the products were written, responses required language skills such as spelling, use of capital letters, sentence structure, and organization. Targeted students' written responses most often could be discerned from the written responses of their peers who were not identified gifted in the language arts area.

Variability in Ability Level

Comparing quality of responses between targeted and other students was not the whole issue. I wanted to know if the quality of response matched students' ability levels. I suspected that the quality of targeted students' responses could consistently be considered better than that of other students, yet still not match the perceived ability level of the target students. Since the teachers knew the students' ability levels better than I did, I questioned the teachers, "Does the quality of response match their ability level?" Keith responded, "Generally yes . . .There are rare exceptions and that is a student who has a particular aversion to a discipline area and they tend to do minimal work." Keith gave me the example of one of my target students who he felt was not writing to his potential. Keith felt that the student just needed to get used to the writing instruction and then he would perform at his ability level. Could there be other reasons for discrepancies? I wondered whether the design of the open-ended activities gave students the option of continually performing in a way that was not commensurate with their abilities. Did both attitudes and instructional design factor into whether students worked at their ability level?

Thus, the profile of the activity, the number of options students had in the content, process, or product domain, affected the differences in students' responses and the teachers evaluations of those responses. This relationship between differences in responses and differences in Open-Ended Activity Profiles will be discussed next.

Relationship Between Differences in Responses and Open-Ended Activity Profiles

Where I expected the most visible differences to occur in students' responses were those activities where students had the most choices in the product domain, the traditional view of open-ended. Activities which I categorized as having unlimited options in the product domain included the noun presentations (10), science products at the end of the science unit (25), French restaurant (29), French Dream House (30), and Free Time (31). Note that in all of these activities, students had an opportunity to work in groups or with a partner. The activities in Becky's room were routinely shared with the class. This may have been why more similarities between groups existed than differences. Most all of the noun presentations involved a game show routine, with two exceptions. Most all of the dream house groups used wooden boxes for houses and cut out magazine pictures for the furniture and accessories for their houses. The French restaurant presentations (students had to make a French menu and role-play dining at a French restaurant), with one exception of the group that was so elaborate, were more similar to each other than different. Students routinely used paper for their food products, and similar food items for their menu.

In Keith's room, Free Time had unlimited options in all of the domain. It was an opportunity for students to use their wildest imagination and produce or create unusual things.. But instead, I observed children creating comfortable routines and similar products.

Giving students unlimited choices within the product domain did not necessarily result in vast differences in their products. Other factors worked to

enhance the similarity of their products, including group dynamics, peer pressure, and spontaneous examples being given to the students by the teachers. For example, in describing the noun presentations to the class, Becky simply suggested a game show idea. She did not say that students should create a game show. The French teacher told Becky's students how another class had used paper for their food items in the restaurant presentations. She did not tell Becky's class to do the same, but they did. Because these activities were shared with classmates, other students had the opportunity to use the same ideas and shape their responses similarly.

In terms of ideas, the greatest differences in responses seemed to emerge when there were few or no options within the product domain. In other words, the children had to have the same product, but had options within the content and process domains. The Gold Medal Story (3), the Rainy Day Festival story (5), the ABC story (9) responses to the math and science journals (17 and 24), and Keith's ongoing writing instruction revealed vast differences in ideas, as well as abilities, even though the product was structured and well defined by the teacher. It is significant for teachers to be aware that offering options within the content and process domains provides students with opportunities to demonstrate creative thinking. Let me use the ABC story activity to illustrate differences in children's ideas, within the confines of the same product. The children were asked to write a story with each sentence beginning with the next letter of the alphabet. Below are two targeted students' responses:

"My ABC Story"
Michigan

All our trips to Michigan are exciting. Beautiful places are located all around the places we go. Cousins, Aunts, Uncles, and my

Grandparents all live up there. Ducks sometimes hang around Lake Michigan so we've gone and fed them once or twice. Everywhere you look there are woods to explore. Fawns and other deer can be seen crossing one of your every day streets.

Great malls are up there so I enjoy going shopping with my relatives. Hundreds of trees are in my cousins' neighborhood, so we have fun climbing through most of them. I want to live their [sic.]because of the land, schools, and the state itself has so many things to see and do. Just going up to Michigan for a weekend is lots of fun, but you never want to leave.

"Kage" is my families main last name up there, because my mom had 2 brothers and 2 sisters and her sisters don't live around the area we travel to.

Late at night in the summer time my sister and I will walk to my cousins house dressed in black, because after we pick them up from their house we walk over to their neighbor's house to play murderer in the dark in their back yard that is a small forest.

My cousin [Emma] is like my best friend, and we write to each other about 3 times a month. Nothing can keep us from being friends, even if we only see each other 4 times a year.

Our aunt Cindy took Emma and I go to a Christian camp 2 years in a row that is located in the middle of a forest, had a lake to swim in and it had many, many, other things to do and see. Places around the camp were: the chapel, dining hall, stable, game room, snack bar, sunshine mountain, the hiking trail, our cabins, the bathrooms, the water slide, the lake, the rifle range, and the archery range. Quiet time at camp was never any fun, because you couldn't even put your head up to look around. Races to the bus, waking up early, and rushing through breakfast all took place the day when we had been at camp 1 whole week, and lucky my cousin came with my aunt so we didn't have to take a 5 hour long trip home on a bus.

Sunsets are so beautiful if you watch them from the right spots, like lake Michigan, sitting in a wood, on a hill, or laying out on my grandparents back porch. Trying to see all the beautiful or fun places in Michigan would last a lifetime it seems, so my family goes to a new place each year.

Under the shade of my cousins field with grasses [that are as tall as me], and big wide trees we've found many hiding spots to hide in from my little twin cousins. Vacations are taken to Michigan in the summer, spring, and Christmas time. Well you've herd [sic] almost every thing there is to hear about Michigan and this story is almost done. X marks the spot on the map that we use to go on our vacations, and there's a BIG one on Flint, Mich. You can do everything I've done, it's lots of fun, but spending 7 house in the car is the only part that's NOT fun. Zip on up to Michigan today!

by Annie

ABC Story

A while ago there was a dog named 'buster, and his owner Connie. Buster was a special dog. Connie was blind. Dogs usually aren't trained as well as Buster. Especially saint bernard. Fire extinguisher liquid was the cause of Connie's blindness. Greg, Connie's brother accidentally sprayed her in the eyes. He was only two when he did it. It was an accident, but it happened. 'Just in time, I was rushed to the hospital just in time, it could have been much worse,' Connie said every time someone told the story.

Keenly, Buster walked Connie home from their walk. Leading her was easy, it was getting things for her that was hard, but Buster managed. Missy, Connie's friend often came over, she lived just next door. No one knew how Connie felt.

One day Connie heard that there was a special on. Perfect, Connie thought, because she wanted to see it. Really badly did she want to see the program. Seeing, sight, oh, how wonderful it is. Truly amazing. Unable to see the program, Connie sort of sighed. Virtually impossible to see anything. Why, or why do I have to be blind, Connie thought. Xylophone, Connie thought as her brother started playing. 'You could play a little softer, you know,' Connie said. 'Zo zwat,' Connie's little brother said. Z-Day thought Connie, her brother's class has a day for every letter. As Connie thought she sighed again. Buster barked.

by Roxanne

I provided the reader with these examples to demonstrate that the responses allowed for differences to occur in content, even though the product was quite structured. In general, children seemed to enjoy having choices in the content domain. Differences in their interests were most prevalent when activities such as writing in Keith's room, silent reading, free time, and discussion periods, provided unlimited choices within the content domain.

It would be premature to make too many generalizations based on comparisons of the Open-Ended Activity Profiles. The process of analyzing the activities into these profiles needs to be studied further. However, my data showed that responses to open-ended activities that had virtually no options in the product domain, were still differentiated. These activities revealed students'

academic abilities, creative thinking, and personal interests. In contrast, when there were unlimited choices in the product domain, the activities were most often group oriented, and it was difficult to see differences according to individuals' abilities, interests, or preferred learning styles.

To summarize, open-ended activities do not necessarily have to provide options within the product domain to provide opportunities to challenge identified gifted learners. Instead, these teachers designed activities that presented outlets for creative or academic challenges and still had a pre-determined, well-defined product. In fact, my data showed more visible differences between products that had unlimited choices within the content domain than those that had unlimited choices within the product domain.

Discussion

The findings suggested that targeted students' responses to open-ended activities were qualitatively different from those of non-target students. Differentiation related to how teachers structured the choices in the activities, what their goals were for those activities, and how they evaluated students' responses. However, a most intriguing feature of open-ended activities noted through this study was that they were seldom used specifically to differentiate responses. The fact that the quality differed between targeted and non-targeted learner responses was not necessarily an intention for using open-ended activities, but was most often a natural result of using them. Thus, although the literature in gifted education suggests that open-ended activities is a strategy to differentiate instruction, the teachers in this study seldom used them to demonstrate differences in abilities.

Both of the teachers in this study evaluated the students' responses to open-ended activities according to their perceived beliefs about the students abilities. In interviews, the teachers told me that they had different expectations for their students and evaluated their work according to those expectations.

In the context of this study, I posed another question: What are the effects of relative assessment on students' future learning experiences? Specifically, judging students' responses to open-ended activities in relation to the teachers' expectations of the students might lower expectations of some students and contribute to a self-fulfilling prophecy. Thus, it may be possible for relative assessments of open-ended activities to result in a lower ceiling on some students' performance. Also, students of higher abilities may feel like their efforts and accomplishments are diminished when all children receive similar grades for different amounts of work, thereby making it less of a challenge to do well in an activity. Eventually, will students of higher abilities lose the desire to produce high quality products?

It was clear from my findings that I was more interested than the teachers in the relationship of targeted students' responses to their own ability levels and in comparing their responses to non-targeted students' responses. It could also be inferred from this that providing standard criteria for evaluation of open-ended activities may not have been important to the teachers. Keith, referring to his observation that targeted students take more time, elaborate, and get more involved with the open-ended activities, commented in an interview:

> I think I encourage some of that because I don't sit and say this is the standard that I want you to perform. Do this and you should be satisfied. It's more as though this is what the task is, what are you going to do?

His concerns about stating standard criteria and having students do the minimum to accomplish those criteria are echoed in the debates over the effects of minimum competencies on the performance of students identified as gifted. The role that evaluation plays in open-ended activities is a topic for further study.

Open-Ended Activities and Democratic Principles: Egalitarian Differentiation

A second issue raised as a result of my findings concerns an ethical dilemma: segregation. As expected, the findings demonstrated that open-ended activities pursued within the context of a general education setting did provide opportunities for teachers to differentiate instruction through learner responses. Responses to activities exemplified differences in ability levels. In this regard, all students were given an equal opportunity to learn, and were presented with the same quality of instruction. Thus, open-ended activities could be seen as a democratic way to serve the needs of all students in the classroom, including the identified gifted ones.

However, an unexpected finding was that in some types of open-ended activities where unlimited choices were provided in the process domain, students consistently chose to pursue these activities with peers of similar abilities, and with peers of the same race. In this respect, at times, the social and learning structure of the room became segregated along lines of abilities and race. This differs from traditional instruction where teachers make intentional decisions about grouping children in their classrooms. Open-ended activities allowed

students to make decisions about grouping in their class, causing unintentional segregated grouping patterns. Thus, by working together consistently and over time, students with high abilities were experiencing different learning opportunities than those children of low abilities who were always choosing to work together.

These patterns of choices bring to light again a basic criticism of gifted education: unequal learning opportunities. In this case it may be seen as undemocratic because it involved segregating, unintentionally, students by abilities, and by race. The questions raised are ethical ones. To what degree did open-ended activities, which, in some cases, allowed students options in the process domain, contribute to segregated learning experiences in the classroom? At what point should teachers intervene to change self-selected grouping patterns which permit students to choose segregation? To what degree do these segregated groupings violate democratic principles in the classroom by altering the quality of learning for some portion of the student population? These questions provide another dimension for examining the egalitarian nature of open-ended activities as a means of differentiated instruction.

Conclusions and Implications for Future Research

This study addressed a significant issue in education today: finding a democratic method to address diverse learning abilities in an inclusive, general education setting. Classroom teachers need many strategies to challenge all of their students, including those identified as gifted and talented. In the past, what was meant by open-ended activities has been ambiguous to classroom teachers. This study provided a conceptual framework for engaging in dialogue about open-

ended activities. In particular, this study demonstrated that differentiation of learner responses occured even when the product involved limited student choices and was quite defined, not "open." The notion that teachers may structure open-ended activities in many ways for different instructional goals is worthy of continued exploration. It would be interesting to study how teacher training or awareness could enhance the ability of teachers to develop and implement open-ended activities for various instructional purposes.

Studies which further explored to what extent open-ended activities provided teachers with knowledge about their students would be complementary to this study. It is my belief that open-ended activities are still an untapped resource for teachers to meet the diverse needs of their students. The more teachers can become aware of learning patterns, the more resources they have to personalize learning experiences for their students.

Curricular intervention studies are needed to shed further light on the effects of changing students' learning patterns by manipulating choices in open-ended activities. Curricular interventions designed to alter students' learning patterns may affect students' attitudes, motivation, or achievement.

In addition, it would be interesting to examine open-ended activities in relation to students with other learning characteristics besides those students identified as gifted. Based on the findings, I questioned the belief that "less successful students may prefer rather than be alienated by individual worksheets, which allow them to work privately, at their own pace, on unambiguous questions with one right answer" (Metz, 1978). Although I targeted identified gifted students, many of the students that I did not target or who were not identified as

gifted seemed to enjoy activities which enabled them to work with partners, choose drawing or acting over writing, or simply express themselves in an unusual way. I did not compare in this study whether identified gifted students enjoyed or benefited from open-ended activities more than other students.

Gifted programs have traditionally provided opportunities for students to work in their own learning style and to pursue their own interests. Renzulli (1991) stated about students in gifted programs:

> An almost universal finding in the evaluation work I have done in numerous programs for the gifted has been that the greatest source of student satisfaction almost always resulted from the students' freedom to pursue topics of their own choosing in a manner with which they themselves felt most comfortable. (cited in Shore, et al., p.107)

As a result of this study, I would advocate open-ended activities as a powerful teaching strategy to provide such freedom in a general education setting. I would advocate that teachers design open-ended activities for students to reveal their interests, their learning styles, and their capabilities. In that role, I believe open-ended activities have value for all learners, not just identified gifted learners. However, I would also caution teachers to observe patterns of learning, and to gain an awareness of how those patterns affect students' academic goals as well as teachers' goals for other students in the classroom.

This study provided rich data and insights into the complexities of open-ended activities, but it is only the beginning of this worthwhile exploration. Issues raised here about interactions between the learner, the teacher, the design of

the activity, and the classroom environment, create fertile ground to pursue further studies on differentiation in a general education setting.

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APPENDIX A

OBSERVATION TIMES IN BOTH CLASSROOMS

Keith's Room

DATE	TIME	SUBJECTS	HRS.	PAGES
10/6	9:15-10:15	Math, Recess, Library	1.0	7
10/15	9:00-10:30	Math, Writing/Recess	1.5	14
10/22	9:05-10:15	Writing, Sharing	1.25	9
10/29	9:15-9:50	Writing	1.0	5
11/3	9:20-10:00	Math, Recess	.75	5
11/19	9:50-11:10	Free Time, writing, Recess,	1.5	7
11/23	11:30-12:35	Interest-A-Lyzer, Free time	1.0	5
11/30	11:40-12:30	Free Time	1.0	8
12/7	ALL DAY	OBSERVATION	6.0	38
12/16	8:20-10:25	Free time, discussion, math, writing	2.0	14
1/12	9:50-12:30	Library, Reading, Free Time, DARE Program, Spelling Test	2.5	21
1/21	2:00-3:00	Music, Story	1.0	5
1/27	8:25-11:20	Free Time, Celebrity Share, Discussion, Math, Writing, Recess	3.0	24
2/2	2:40 - 3:00	Computer Lab	.25	1
2/4	1:20-3:00	Social Studies, Free time, Music	1.5	15
2/8	1:30 - 3:00	Social Studies, Dance/Drama, Kinder Share	1.5	10
2/9	1:15-3:00	Story, Free time, Computer Lab	1.5	5
2/11	9:15-10:15	Math, LSI, Free time	1.0	3

2/16	1:30-3:00	Map of room, Computer Lab	1.5	7
2/23	1:15-2:00	Writing, Computer Lab	.75	6
3/2	1:20-3:00	Discussion, Social Studies, Free Time, Computer Lab	1.5	12
3/18	1:15 - 3:00	Science, Music, Raffle	1.75	16
3/23	9:15 - 12:30	Field Trip/Recess	3.25	15
3/28	9:15 - 10:15	Tree Video	1.0	7
4/15	2:35 - 3:00	Raffle, End of Day	.5	3
4/28	10:50 - 12:30	Free time, Reading, Dictionary Lesson, Science	1.5	19
5/6	10:00 - 11:15	Mother's Day Coupons, Free time, Spelling	1.25	11
5/17	1:00 - 2:00	Recess, Science	1.0	10
5/18	11:20 - 2:00	Reading, Science, Lunch/Recess, Science	3.5	26
5/19	9:40 - 1:25	Science Fair	4.0	15
5/24	ALL DAY	OBSERVATION	6.0	39
	31 observations	TOTAL	56	382

Observations in Becky's Room

DATE	TIME	SUBJECTS	HRS.	PAGES
10/20	9:30 - 10:30	French, Assembly	1.0	7
10/23	10:05-10:50	French, Spelling, Math	.75	7
11/19	8:25 - 9:30	Spelling, T.V. News	1.0	11
11/23	8:50 - 11:00	Proud of, Interest-A-Lyzer, Gym	2.0	6
12/1	ALL DAY	ALL SUBJECTS	6.0	39
12/14	ALL DAY	Chanukah Party	6.0	28
1/12/94	1:05 - 2:50	Reading, Language, Stories	1.75	16
1/13	12:30 - 1:30	Reading Groups, Dance/Drama	1.0	7
1/20	8:25 - 10:30	Cover to Cover, Math	2.0	14
1/28	2:00 - 3:00	Spelling, Jumping, News Discussion	1	10
2/1	8:20 - 10:50	Library, Math, Computer Search, Gym	2.25	16
2/10	1:30 - 2:45	French Dream House, Whale, Math Detective Jumping	1.25	10
2/16	8:20 - 10:30	Science, Spelling, Music, French	2	19
2/17	8:30 - 10:30	Video, Math problem solving, LSI	2.	8
2/18	8:35 - 10:00	Spelling, T.V. News show	1.5	10
2/24	8:25 - 10:25	Discussion, T.V., ABC Story	2.0	19
3/8	1:00 - 2:30	Teaching the class, movie	1.5	12
3/9	12:25 - 2:30	Teach class presentations	2	14

3/10	12:40 - 1:15	Oral reading, dance/drama	.5	7
3/17	12:20 - 2:40	Oral reading, math, dance/drama	2.25	17
3/22	12:50 - 2:45	Social Studies, Science, Kickball	2	15
4/11	9:20 - 10:30	Spelling, French Menus	1	7
4/15	9:40 - 10:30	Rainy Day Festival, French	1	6
4/18	12:15 - 12:45	Story, Social Studies	.5	5
4/26	12:30 - 2:30	Field Trip to Busey Woods	2	11
5/3	11:30 - 1:00	Clean desks, science	1.5	13
5/9	11:11:45	Interviews with students, discussion with teacher	.75	2 + Trans.
510	7:00 - 8:00	Performance in evening	1.0	4
5/12	11:00 - 12:30	Interviewed students, reading	1.5	2 + Trans
5/25	ALL DAY	ALL SUBJECTS	6.5	42
5/17	1:30 - 3:00	Problem Solving	1.5	8
	31 Observations	TOTAL	59	392

APPPENDIX B

DESCRIPTIONS OF OBSERVED OPEN-ENDED ACTIVITIES

Curricular Area: Language Arts

1 (Keith)

"Writing Instruction"

Students write a rough draft of whatever they want to write in a spiral bound notebook. Usually they have about one half hour for writing. They begin the writing period by getting out their notebooks and dating their entry. After they date their entry, they may move to a place anywhere in the room and they may write with whomever they like. After the writing period, they return to their seats to have their notebooks checked by the teacher who walks around and gives every child a sticker. Usually the child puts the sticker on his or her name card which is taped to the desk. Sometimes the children put their stickers in their notebooks.

When the children finish the rough draft, they go to a teacher or a parent volunteer and get their work edited. This is a two-way process where the teacher or helper talks to the child about the story, encourages the child to remember periods, capital letters, quotation marks, and other grammatical rules. Spelling is also corrected, with encouragement to use a dictionary.

The children copy their story with the corrections onto white paper and bind their book with a spiral binder and a tagboard cover. This binder is in the classroom and most of the children can do this themselves. They may read their stories aloud to the class if they choose to do so. The finished books (now titled 2nd drafts) are displayed in a bookcase by the carpeted area of the room.

2 (Keith)

"Dream Pictures"

This activity evolved out of the teacher's reading **BFG** by Dahl to the class. The teacher asked the children to capture a dream in a jar. He brought in peanut butter jars with lids and asked the children to show a dream and put it in the jar. He told them that it could be a real dream, a scary dream, a bad dream, or a recurring dream. Directions were as follows: "Tell us about the dream and put it in the jar." One child asked if he could draw a picture. The teacher responds that people see dreams in pictures. This brief discussion concluded by the teacher saying that a story would be good, you can also draw pictures.

The teacher told the children that they didn't all have to do the dreams. He only had about 15 jars and if some of the children didn't want to do dreams, they could do their "regular writing" during writing time. He also said that some of them were running out of ideas during their regular writing time, this would be a good opportunity for those children.

He asked the children to raise their hands if they wanted to do dreams. He announced that about as many people raised their hands as he had jars. He left them with the last comment, "However you want to do it."

3 (Becky)
"Gold Medal Activity"

This activity took place after the class had a discussion of news articles. Several of the children talked about Tonya Harding and whether or not she should be allowed to go to the Olympics. The teacher asked the children to write the ending to this. . . "I think a gold medal should be awarded for . . ." After they finished the stories, the teacher had them read their stories aloud to the class.

4 (Becky)
"Elmo Activity"

The idea for this activity came directly from their Language books. pg. 112. The directions in the language book read verbatim:

Exercise Looking at Topic Sentences

Here are five topic sentences. They will begin five separate paragraphs. Explain what each paragraph will be about.

1. Ruby is a special rabbit.
2. Our new house is too small.
3. Elmo the Magnificent is not a good movie.
4. Yesterday I wrote to the President.
5. I read an exciting book last week.

The teacher modified this activity and asked the children to write five sentences to support one of the topic sentences.

5 (Becky)
"Rainy Day Story"

It was a rainy day outside and the teacher was afraid that the third - fifth grade kickball tournament would be canceled in the afternoon. In the morning, she asked them to write a story about what they would do if they were designing a Rainy Day Festival.

6 (Keith)
"Quintain"

The children were asked to write a 5 line poem called a "Quintain." They were given the rules of the Quintain: First line had 2 syllables, second line had 4 syllables, third line had 6 syllables, fourth line had 8 syllables, and the fifth line had 10 syllables.

7 (Keith)
"Haiku".

The children were taught how to write haiku and were given the opportunity to write their own haiku poems. An example was written together with the class on the board. After making the first draft, they were given white drawing paper and told to choose their favorite poem from the ones they had written and copy it over onto the white paper and make an illustration. It was stressed that these papers would be up for display.

8 (Becky)
"Pass the Spelling Paper"

The children are sitting in their seats in a desk arrangement with four desks to put together to form a group. They are asked to write five sentences for the first five spelling words and then pass their paper to the next person. The next person checks the first five sentences and adds five sentences with the next five spelling words. They change their papers again. This proceeds around the group until each child has written a total of 20 sentences.

9 (Becky)
"ABC Story"

The children are asked to write a story starting every sentence with the next letter of the alphabet. A for the first sentence, B for the next sentence, C, and so forth. They have to do this individually.

10 (Becky)
"Noun Presentations"

The children were asked to open their language books and review the pages about nouns, and rules about plurals and possessives for an upcoming test. The review pages had the following categories:

A. Finding Nouns
B. Finding Common Nouns and Proper Nouns
C. Forming Plurals.

The teacher asks for them to show her that they understand them in any way that they want. She told them that they could work in groups or on their own. She told them that they could make a quiz show or do the exercises in their books if they didn't want to participate in the group presentations. They had one half hour to work on their "Noun presentations." It took another hour to go through all of the presentations. All but one child participated in presentations. This child worked all of the exercises on the two pages.

11 (Becky)
The Frog Picture

The teacher gave the stimulus orally, "The frog stood up on his hind legs and recited a poem about SPRING." She passed out white paper and told them that they would need a pencil and "Whatever you like to draw with, colored pencils or markers. Each child had to make his/her own drawing. This was the second time they had to do this type of activity. The first time, they had the stimulus, "Once Rosa was settled on the dolphin's back, it took her for a joyful ride around the island."

12 (Becky)
"Vivid Sentence"

The teacher asked the children to write a sentence that "I could read and picture in your mind that I could draw a picture for you like you did for me." She repeated, "Draw a vivid sentence so that when I read it, I can close my eyes and

picture it." Each child had to get out his/her own piece of paper and write the sentence for her.

13 (Keith)
"Free Reading"

The children have about one half hour for silent reading every day. They can pick any book that they want. They have one on one conferences with the teacher about their books.

14 (Becky)
"Holocaust Book"

After reading the book, Number the Stars as a group, the children were asked to go to the library and pick out another book about the Holocaust. It could be either fiction or nonfiction. The teacher suggested several titles but encouraged them to find their own. They had to write a book report and share orally with their reading group.

15 (Keith)
"Kinder-Share"

Kinder-Share. This is an activity where third grade students are asked to make a book selection and read their book or books to a kindergartner. They either are told to read in their classroom or the room of the kindergartner and once in that room, they can find a spot anywhere.

Curricular Area: Math

16 (Becky)
"28 X 4"

The teacher introduced this activity by telling the children that they will do this one quick problem in their math journals and then she would take them down to have PE and get their energy out. The children are to put their answers in their math journals. The teacher says to the class that she wants them to make a word problem that goes with the number problem: 28 X 4. She clarifies their task: "What I really want you to do is write me a word problem or every day situation that goes with this." One child asks if it can be 4 X 28. She responded, "I don't care."

17 (Becky)
"Hardest Math Problem"

This activity took place the day before my observation. The teacher wanted to share their responses with me. She volunteered that I could copy their responses. The children were asked to write the hardest problem that they knew in their math journals.

18 (Becky)
Series of Shamrock & Bunnies Problems - #1

The teacher gave the children the following math problem to solve: Three rabbits found seven shamrocks. Rabbit #1 ate five leaves. Rabbit #2 ate three leaves. Rabbit #3 left one leaf on three shamrocks. How many shamrock

leaves are left growing? The children were to work the problem and show their answers in words and pictures.

19 (Becky)

Series of Shamrock & Bunnies Problems - #2

The teacher gave the children the following math problem to solve:
Three rabbits found seven shamrocks. Rabbit #1 ate five leaves. Rabbit #2 ate three leaves. Rabbit #3 left one leaf on three shamrocks. The teacher told them that there were 9 leaves left growing. The children were to work the problem and show how they got the answer 9 in words and pictures.

20 (Becky)

Series of Shamrock & Bunnies Problems - #3

The teacher gave the children the following math problem to solve:
Three rabbits found seven shamrocks. Rabbit #1 ate five leaves. Rabbit #2 ate three leaves. Rabbit #3 left one leaf on three shamrocks. The teacher told them that there were 11 leaves left growing. The children were to work the problem and show how they got the answer 11 in words and pictures.

21 (Keith)

"Create a Receipt"

The teacher has written the directions for this activity on the front board:

Billy wins a Shopping Spree

1. Decide what Billy would buy.
2. Make a receipt that shows how many items of each price he bought.
3. Show the total he spent and the credit he has left, if any.
4. Repeat for another way Billy could spend the money.

The teacher introduces the lesson by asking the children to think back if they've ever been in a museum before. He asks children what they bought at the museum. Several children responded precious stones, airplane, raccoon's tail, and an animal magnet. The teacher tells the students that "today's problem deals with Billy. Billy goes to the museum and finds out he's the 100 thousandth person to walk in the museum. The owners give him a prize of $25.00. The teacher passes out a ditto sheet with all of the things that they could buy at the museum and why they cost. He told them that they don't have to worry about cents, because everything costs an even dollar.

He tells them that they can choose to make their own receipt and dot it in their own way or they can do it with someone else. If they do it with someone else, he asks them to put both their names on their papers. He tells them that some of them work very quickly and they can do more than two.

The activity is from the book, Math by All Means, Marilyn Burns (1991), Math Solution Publications.

22 (Becky)
"Get to 100"

The teacher introduces the activity, "We're going to do some group problem solving." She asks for everyone to be in his or her seat. She asks for them to have one paper for each group. On the board she draws the following

(The lines are boxes)

___ ___ - ___ - ___ +___ + ___ +___ +___ + ___ + ___ = 100.

The directions were to use digits 0 - 9 so that this will make an equation that = 100. She told them that there are 10 boxes all together. They could use each digit only one time. She also told them that she didn't care if they used their calculators, "I don't think it will be real useful to you, but you can use it if you want." Each table configuration of four desks worked together as one group.

23 (Becky)
"Legged stools"

The teacher gave this as a second problem in a group problem solving activity. She wrote on the board 3 legged stools and 4 legged chairs. She told them that all together there were a total of 29 legs. "How many stools and how many chairs were there?"

Curricular Area: Science

24 (Becky)
"Science Journal"

The children are waiting for a visitor to begin a Chanukah party. The teacher passed out the science journals and asked them to write today's date and then "Write the neatest science event that you've seen in this past week." She gives the examples of the shuttle endeavor, story musgrave, how lights work, or how something words. She explains further that it could be some science thing that "you've heard about or observed in the last week."

25 (Becky)
"Science Projects"

At the beginning of each unit, the students are given a list of goals for that unit. At the end of the unit, they are to demonstrate to the teacher in any manner that they choose, that they have mastered the knowledge in the goals. A written test is always an option. Recently, two girls put together a display case of the finished projects from the unit on machines. In the display case were models of pulleys, parts of simple machines, written reports, posters, and pictures of machines and their history.

26 (Keith)
"Airplane Pictures"

The teacher is teaching a unit on Flight. He asks the students one day to draw an airplane and label the parts of the plane. The next day, he passes out their drawings and tells them that they are going to add a few things to their drawing. He has words on the board for them to copy and spell correctly when they label those parts:

1. lift *fuselage
   thrust *propeller
2. label *wings

He defines the word lift and asks them to draw one thing that gets the plane off the ground and write a sentence that tells how. He puts "thrust" on the board and defines it as the thing that makes the plane go through the air. He told the children to write on the front page about the thing that makes the plane go through the air. He told the children that they should try to write as much as they can besides these two sentences today.

27 (Keith)
"Science Fair Projects"

The children worked in groups on various science experiments prior to having to make their own choice about what science demonstration to do for a class science fair. After they chose a project, they had several opportunities to practice their demonstration in front of the class. The day before the science fair, the teacher completed a worksheet for each student explaining their experiment, and passed it out to all of them. Some of the students worked in pairs, but most had their own demonstration.

Curricular Area: Social Studies

28 (Keith)
"Water Body Maps"

The children reviewed the names of all of the bodies of water by looking at an overhead transparency. The teacher passed out white paper and asked them to draw their own map including all of the types of bodies of water. He asked them if they would like their spelling lists which have these names to help them. He gave a spelling list to every child. The words on the spelling list included: bay, delta, isthmus, peninsula, strait, island, cape, ocean, sea, river, and gulf. As the activity began, a he noticed that a child had named a lake. He said, "Sam had a nice idea, giving everything a name like Lake Michigan. Why don't you give everything a name as well?"

Curricular Area: French

29 (French Teacher)
"French Menus"

The French teacher asked the students to make a presentation like the students were in a French restaurant. She wanted them to turn in a menu and role play the ordering of items off the menu. They were allowed to work with partners, groups, or individually.

30 (French Teacher)
"Design a Dream House"

The French teacher asked the students to design a dream house. They were encouraged to cut pictures from magazines to decorate their dream house. They had to write about their dream house and describe every room in French. Then they had to present their dream house and read their description in front of the class in French. They were put in groups to do this project. Some of the children changed their groups by their own choice. They had several weeks to complete their projects.

Free Time

31 (Keith)
"Free Time"

This occurs throughout the day when children have finished their work or when there isn't enough time to start something else. Children are allowed to choose anything to do in the room and to work with whomever they like. It isn't written into their daily schedule, but it looks as though they have a little bit of free time daily.

Discussion

32 (Keith)
"Morning Discussion"

The first thing in the morning is discussion time. The children have an opportunity to bring up any topic in their morning meeting.

33 (Becky)
"Discussion on Topic"

This is a focused discussion on a topic such as the news video that was just shown, or news articles that were shared orally.